

NEW ISSUE



**SIGHT PROBLEMS
AND THE USE OF
GLASSES / CONTACT LENSES
(persons aged 15 years or more)**

FEBRUARY-MAY 1979

CATALOGUE NO. 4338.0

AUSTRALIAN BUREAU OF STATISTICS Canberra

**SIGHT PROBLEMS AND THE USE OF GLASSES/CONTACT LENSES
(PERSONS AGED 15 YEARS OR MORE)**

FEBRUARY – MAY 1979

R. J. CAMERON
Australian Statistician

Catalogue No. 4338.0

AUSTRALIAN BUREAU OF STATISTICS

INQUIRIES

If you want to know more about these statistics ring Mr David Wilson on Canberra (062) 526410 or our State office, or write to Information Services, ABS, P.O. Box 10, Belconnen, A.C.T. 2616.

For copies of this publication contact Information Services, Canberra (062) 526627 or State offices.

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FEBRUARY – MAY 1979

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EXPLANATORY NOTES

Introduction

A sample household survey was conducted throughout Australia during February to May 1979 to obtain information about sight problems and the use of glasses/contact lenses by the Australian population. This publication contains results for persons aged 15 years or more. Results for persons aged 2 to 14 years are contained in an earlier publication (Catalogue Number 4337.0).

Survey methodology

2. The survey was based on a multi-stage area sample of private dwellings (about 14,000 houses, flats, etc.) and non-private dwellings (hotels, motels, etc.) and covered about one-third of one percent of the population of Australia. The information was obtained from the occupants of the selected dwellings by carefully chosen and specially trained interviewers.

Scope

3. The estimates relate to all persons aged 15 years or more except:

- (a) some boarding school students, some patients in hospitals, nursing homes and other health institutions or inmates of goals, reformatories, etc.,
- (b) certain diplomatic personnel of overseas governments and their dependants customarily excluded from census and estimated populations,
- (c) overseas visitors holidaying in Australia,
- (d) members of non-Australian defence forces (and their dependants) stationed in Australia.

4. The exclusion of persons currently in hospitals, nursing homes and other health institutions should be borne in mind in assessing the significance of the results.

Definitions

5. *Glasses/contact lenses* — includes all prescribed glasses or contact lenses and excludes all forms of glasses which are not prescription glasses such as industrial eye-protection glasses and non-prescribed sunglasses.

6. *Colour blindness* — refers to an inability to identify one or more of the primary colours. The replies to this question were based on the respondent's own knowledge of whether the person concerned was colour blind and not on any sight test done at the time of interview.

7. *Loss of sight* — any reported loss of sight irrespective of whether that person has glasses/contact lenses. This loss may be full or partial loss in one or both eyes.

The following should be noted:

(a) If a person has a loss of sight which can be helped by glasses or contact lenses and also has another type of loss of sight which cannot be helped by glasses then such persons appear in the category 'cannot be helped by glasses/contact lenses'.

(b) The number of persons reporting a loss of sight who can be helped by glasses or contact lenses will not necessarily equal the number of persons currently wearing glasses as some persons may need glasses but have not obtained them.

8. *Last sight test* — all persons were asked if they had any type of sight test or examination in the last five years.

9. *Person who last tested sight* — Persons who had their sight tested in the last five years were asked whether their most recent test was done by either an optometrist/optician, an eye specialist (ophthalmologist) or some other person.

Reliability of the estimates

10. Since the estimates are based on a sample they are subject to sampling variability (see technical note, page 24 for further details). Some figures in this publication are replaced or preceded by the symbol *. Estimates preceded by this symbol have a standard error of between 25 and 50 per cent and care should be exercised in using them because they are subject to such high errors. Estimates which are replaced with this symbol have a standard error greater than 50 per cent.

11. In addition to sampling errors, the survey results are subject to non-sampling errors, i.e. those inaccuracies that may occur because of imperfections in reporting by interviewers or respondents, processing errors and non-response. Such errors may occur in any statistical collection whether it is a full census count or a sample survey. Every effort is made to reduce non-sampling errors in the survey to a minimum by careful design and testing of questionnaires, by intensive training and supervision of interviewers, and by efficient operating procedures.

12. The following factors should be considered in interpreting the estimates in this publication:

- (a) the information provided by respondents was not medically verified and reported problems such as colour blindness were not necessarily based on diagnoses by medical practitioners,

- (b) the answers to the questions were usually based on the knowledge of one person in a household (generally the housewife).

Related publications

13. Other ABS publications which may be of interest include:

Sight, Hearing and Dental Health (persons aged 2 to 14 years) February – May 1979 (4337.0)

Australian Health Survey, 1977-78 (4311.0)

14. Current publications produced by the ABS are listed in *Catalogue of Publications* (1101.0) which is available free of charge from any ABS office.

Symbols and other usages

- .. not applicable
- * subject to high sampling variability
(see explanatory note 10 on page 3)

15. Where figures have been rounded, discrepancies may occur between sums of the component items and totals. Published rates and percentages are calculated prior to rounding of figures and therefore some discrepancy may exist between these rates or percentages and those that could be calculated from the rounded figures.

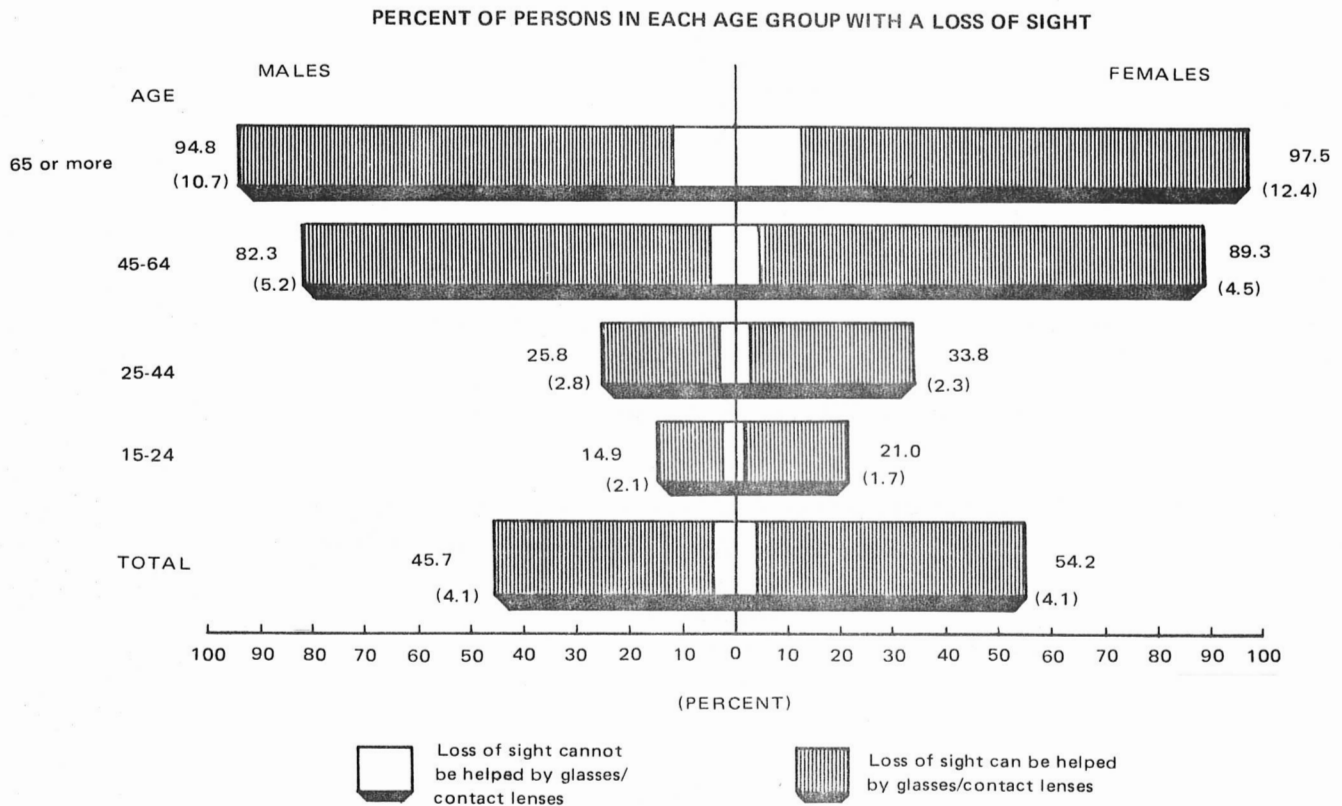
SUMMARY OF FINDINGS

PERSONS WITH SIGHT PROBLEMS

Loss of sight

One-half of all persons aged 15 years or more reported having some loss of sight. However only 4 percent of all persons aged 15 years or more reported that the loss of sight could not be helped by glasses/contact lenses.

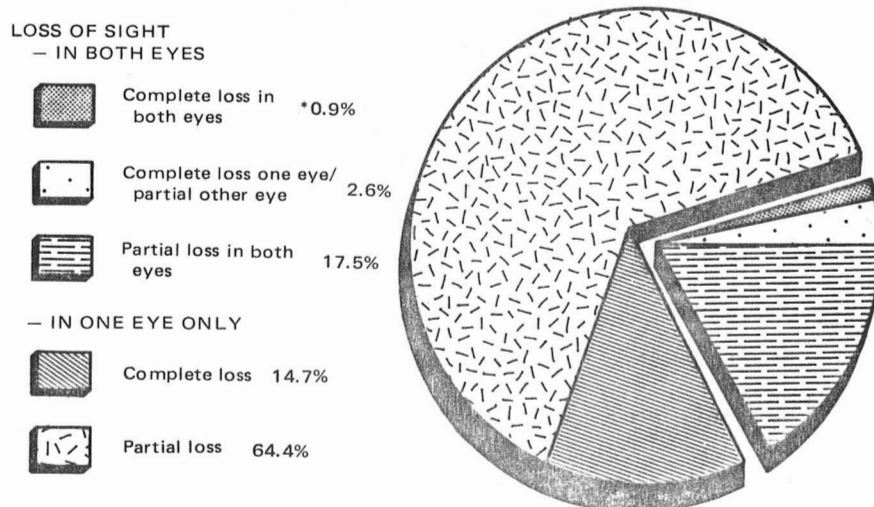
The diagram below shows that the proportion of persons reporting some loss of sight is higher in the older age groups and is reported by more females than males for each age group. However for loss of sight which cannot be helped by glasses/contact lenses males had a higher rate than for females for all age groups except for 65 years and over.



Type of sight loss

Over three-quarters (79 percent) of the incidence of sightloss which could not be helped by glasses/contact lenses involved one eye only. Partial loss was more frequent than complete loss of sight irrespective of the number of eyes effected.

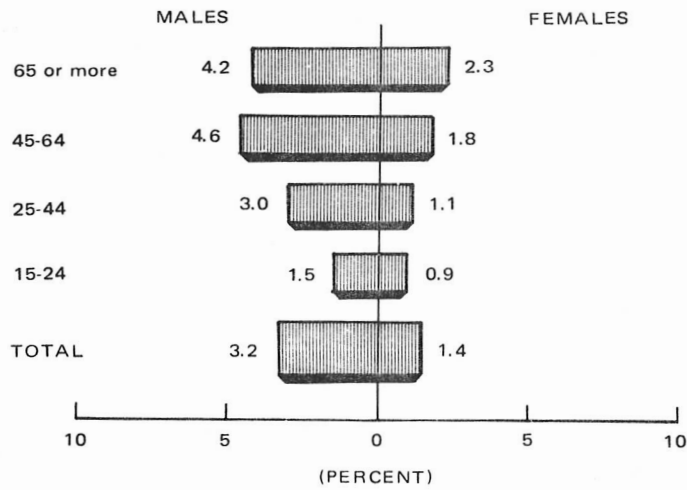
PERSONS WITH A LOSS OF SIGHT WHICH CANNOT BE HELPED BY GLASSES/CONTACT LENSES : PERCENT DISTRIBUTION OF TYPE OF SIGHT LOSS



Effect of eye injury

Approximately 241,000 persons or 2.3 percent of the population aged 15 years or more suffered from the effect of an eye injury. More males than females reported this condition.

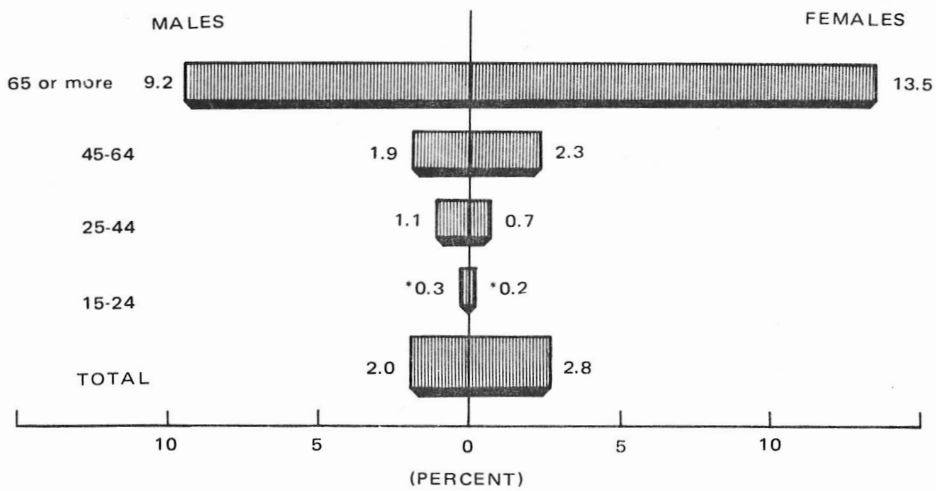
PERCENT OF PERSONS IN EACH AGE GROUP SUFFERING THE EFFECT OF AN EYE INJURY



Cataract

Approximately 2.4 percent of the population aged 15 years or more reported a cataract. The majority of these persons were aged 65 years or more.

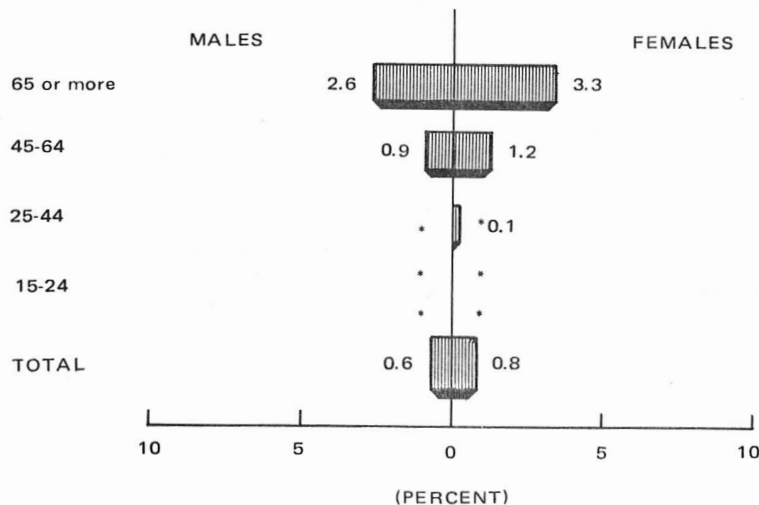
PERCENT OF PERSONS IN EACH AGE GROUP WITH A CATARACT



Glaucoma

The number of persons who had glaucoma was 74,500 or approximately 0.7 per cent of the population aged 15 years or more. As with cataract the majority of these persons were aged 65 years or more.

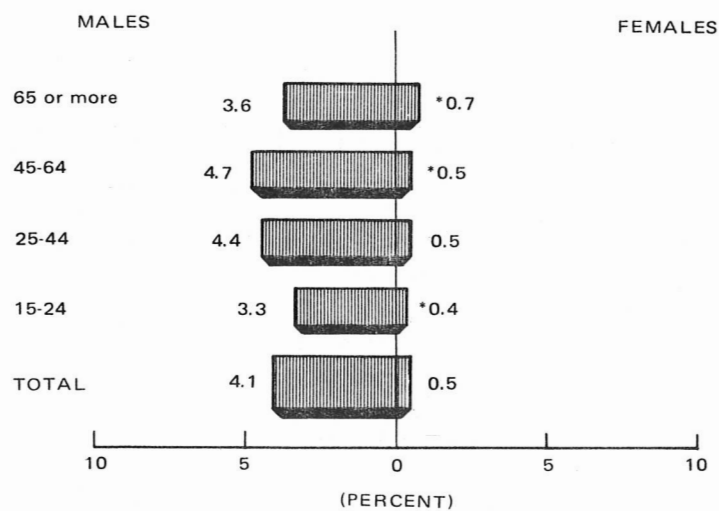
PERCENT OF PERSONS IN EACH AGE GROUP WITH GLAUCOMA



Colour blindness

The incidence of colour blindness reported by persons aged 15 years or more was 2.3 percent. As the diagram below shows the percentage of males in total, reporting colour blindness is approximately 8 times as great as that for females.

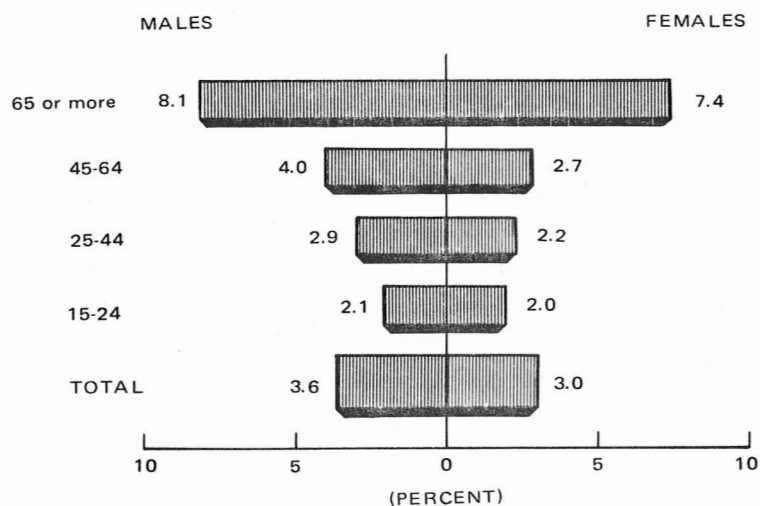
PERCENT OF PERSONS IN EACH AGE GROUP REPORTING COLOUR BLINDNESS



Operation to help sight

Approximately 3 percent of the population aged 15 years or more had an operation to help their sight.

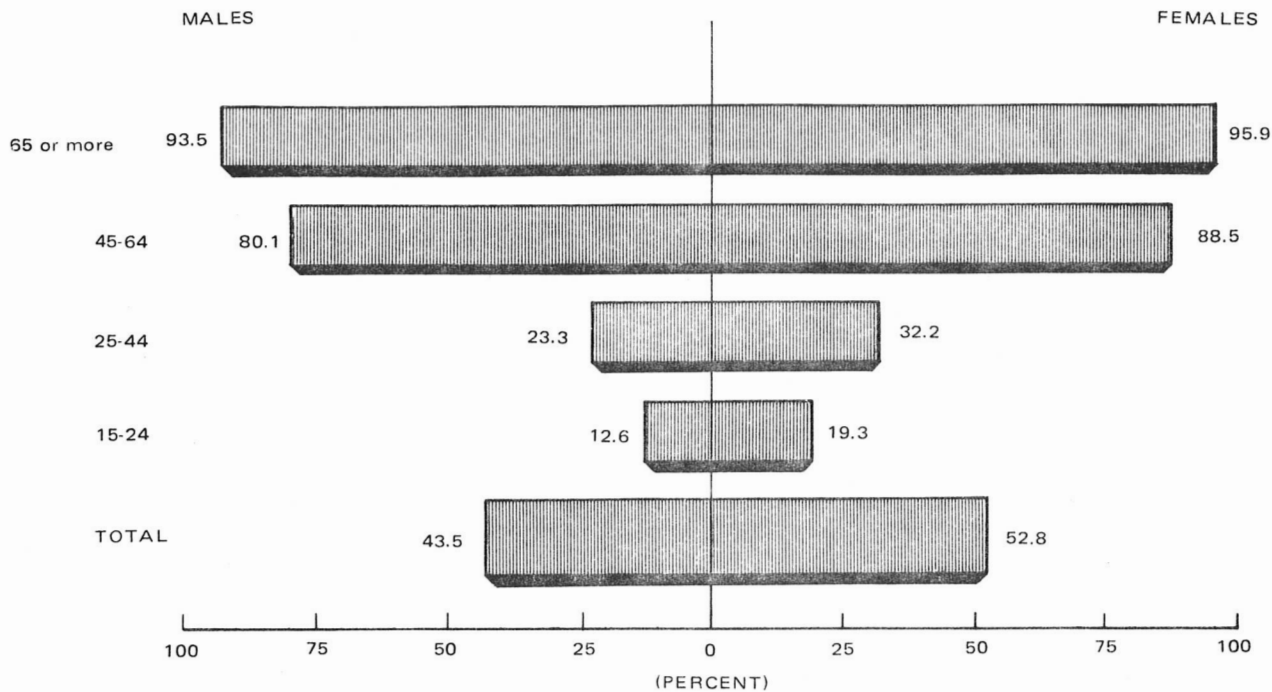
PERCENT OF PERSONS IN EACH AGE GROUP WHO HAVE HAD AN OPERATION TO HELP THEIR SIGHT



PERSONS WITH GLASSES/CONTACT LENSES

Approximately 48 percent of the Australian population aged 15 years or more reported having glasses or contact lenses to help their sight. The percentage of persons with glasses/contact lenses increased with age from 15.9 percent of persons aged 15 to 24 years to 94.8 percent of persons aged 65 years or more. As the diagram below shows, a greater percentage of females than males had glasses/contact lenses for all age groups.

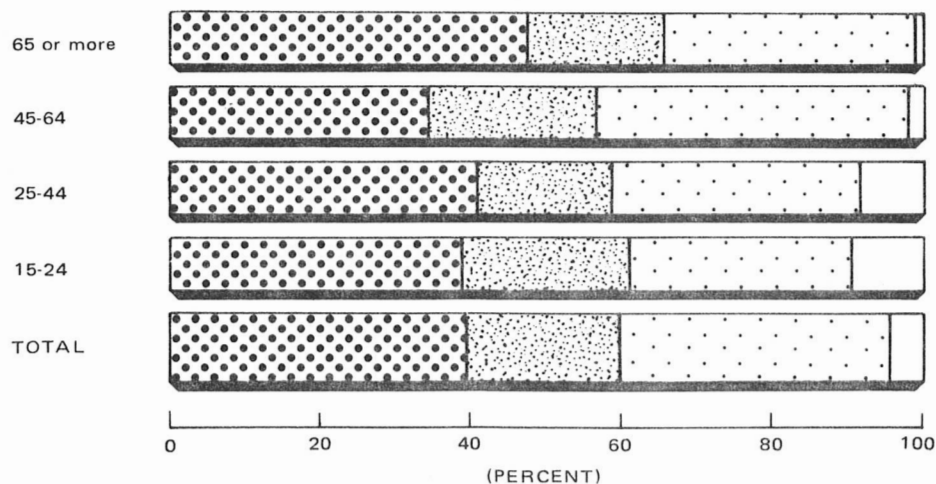
PERCENT OF POPULATION IN EACH AGE GROUP WITH GLASSES/CONTACT LENSES BY SEX



How often glasses/contact lenses worn

Almost 40 percent of persons with glasses/contact lenses wear them for more than 8 hours a day. However approximately 4 percent wear their glasses/contact lenses less than once a week or never. This proportion decreases with age from 9.5 percent of persons with glasses/contact lenses in the 15 to 24 year age group to less than one percent of similar persons in the 65 year or more age group.

PERSONS WITH GLASSES/CONTACT LENSES : HOW OFTEN GLASSES/CONTACT LENSES WORN BY AGE



More than 8 hours a day



4 to 8 hours a day



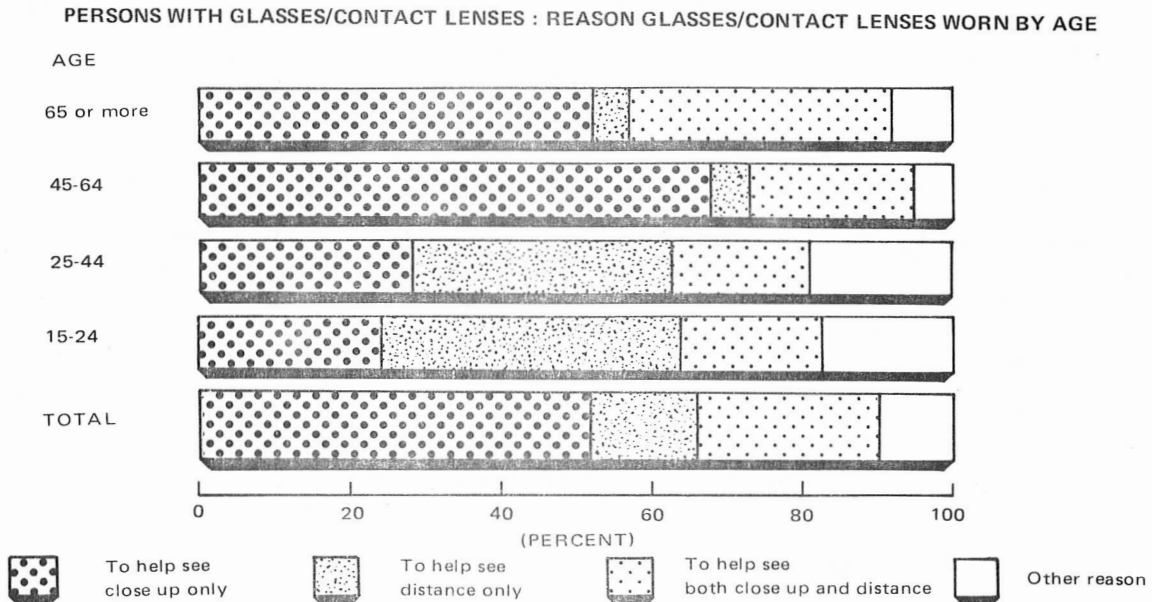
At least once a week but less than 4 hours a day



Less than once a week or never

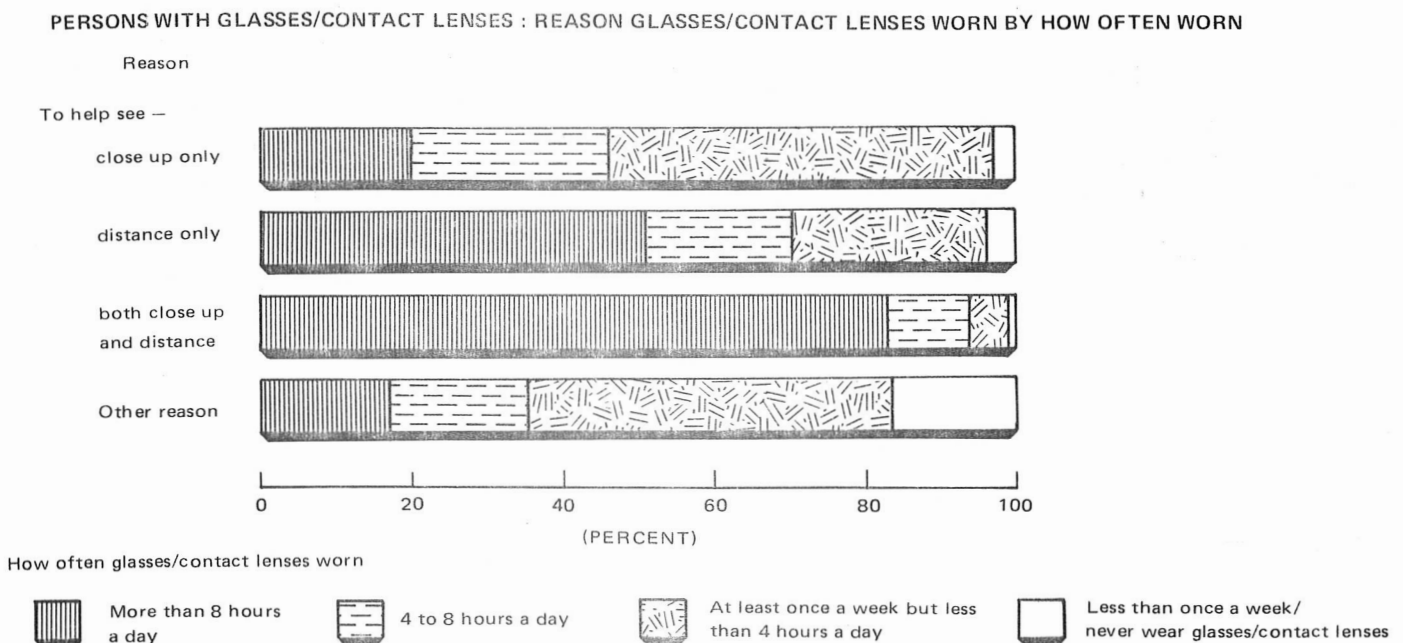
Reason glasses/contact lenses worn

The most frequently reported reason for using glasses/contact lenses, was 'to help see close up only' reported for 52 percent of persons with glasses/contact lenses. However for the younger age groups, 15 to 24 and 25 to 44 years, the category most frequently reported was 'to help see distance only'.



Relationship between how often glasses/contact lenses are worn and the reason for which they are worn

The relationship between how often glasses/contact lenses are worn and the reason for which they are worn is shown in the diagram below. For persons who use their glasses/contact lenses to help see close up only, over one-half (52 per cent) wear them at least once a week but less than 4 hours a day. Also, over one half (51 percent) of persons who use their glasses/contact lenses to help see distance only use them for more than 8 hours a day. As could be expected the majority of persons who use their glasses to help see both close up and distance wear them for more than 8 hours a day (83 percent of these persons). The category 'other reason' for using glasses/contact lenses contains the highest proportion of persons who use them less than once a week or never.



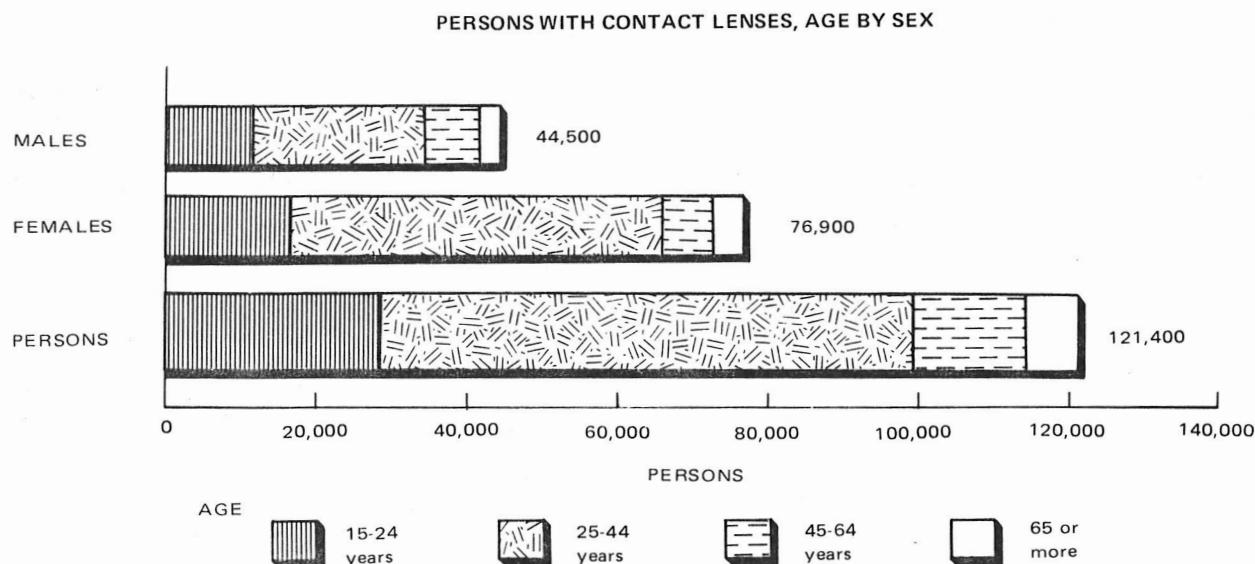
Age at which glasses/contact lenses first worn

Of persons aged 15 years or more with glasses/contact lenses approximately one-half (51 percent) first wore them when they were 40 years of age or more. Of these persons 71 percent reported 'to help see close up only' as the reason why glasses/contact lenses are currently worn. The proportion of those who were less than 40 years old when they first wore glasses/contact lenses and whose reason for currently wearing glasses/contact lenses was also 'to help see close up only' was only 32 percent.

Persons with contact lenses

Persons with contact lenses comprise 121,400 persons or 2.4 percent of persons with glasses/contact lenses. Nearly three quarters of persons with contact lenses (72.6 percent) also have glasses.

The majority of persons with contact lenses are in the 25 to 44 age group (59.0 percent). The number of females in this age group with contact lenses is more than double the number of males with contact lenses in the same age group.



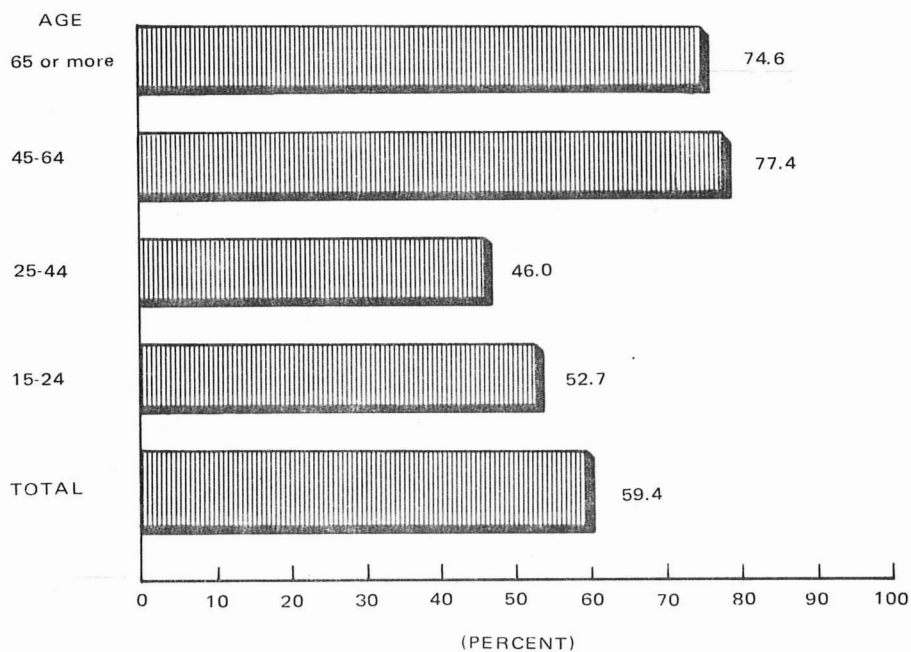
Type of contact lenses

The type of contact lenses most frequently reported for both males and females was 'soft' contact lenses (65 percent of males with contact lenses and 60 percent of females with contact lenses).

PERSONS WHO HAVE HAD THEIR SIGHT TESTED IN THE LAST FIVE YEARS

Approximately 59 percent of the population aged 15 years or more had their sight tested in the last five years. A higher proportion of females (61 percent) had their sight tested in the last five years than males (58 percent). The chart below shows that the age group with the highest proportion of persons who had their sight tested in the last five years is the 45 to 64 year group (77.4 percent) followed by the 65 years or more group (74.6 percent)

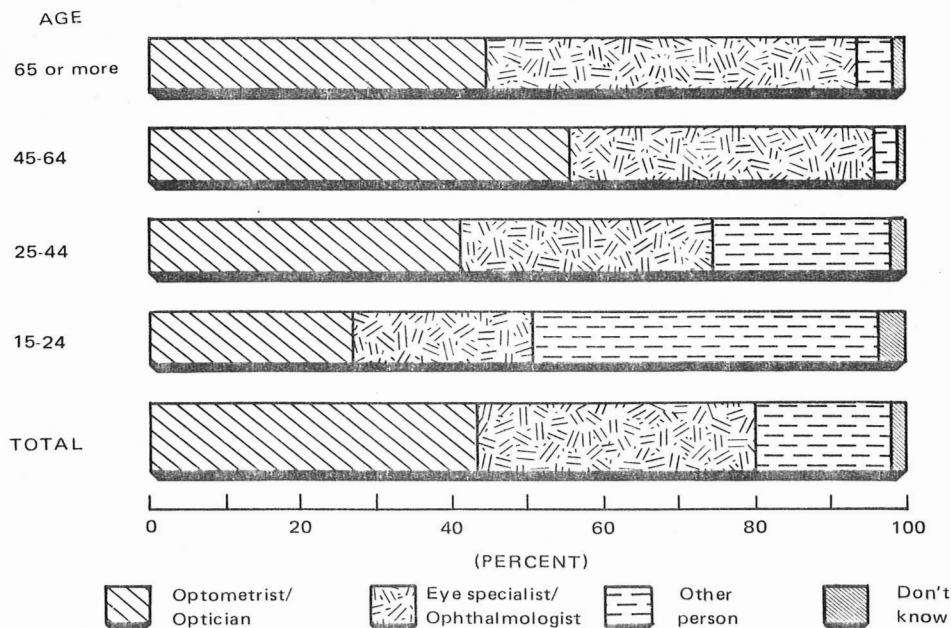
PERCENT OF POPULATION IN EACH AGE GROUP WHO HAD THEIR SIGHT TESTED IN THE LAST FIVE YEARS



Person who last tested sight

Of persons who had their sight tested in the last five years 43.6 percent had their last sight test done by an optometrist/optician while 36.4 percent had the test done by an eye specialist/ophthalmologist. The chart below shows that the age group with the highest percentage of persons who had their last sight test done by an optometrist/optician was in the 45-64 year group (55.3 percent). The age group with the highest percentage of persons who had their last sight test carried out by an eye specialist/ophthalmologist was the 65 years or more age group (49.3 percent).

TYPE OF PERSON WHO LAST TESTED SIGHT : AGE



SECTION 1. SIGHT PROBLEMS

TABLE 1. PERSONS WITH A LOSS OF SIGHT : AGE BY SEX

	Age (years)				
	15-24	25-44	45-64	65 or more	Total
NUMBER ('000)					
Males	185.5	514.9	1,155.2	522.2	2,377.9
Females	256.1	660.5	1,243.6	709.6	2,869.7
Total	441.5	1,175.4	2,398.8	1,231.8	5,247.5
RATE (a)					
Males	148.7	257.7	823.1	948.0	457.3
Females	209.8	337.9	892.8	974.6	541.8
Total	178.9	297.3	857.8	963.1	499.9

(a) Number per 1,000 population in each category.

TABLE 2. PERSONS WITH A LOSS OF SIGHT WHICH CANNOT BE HELPED BY GLASSES/CONTACT LENSES :
AGE BY SEX

	Age (years)				Total
	15-24	25-44	45-64	65 or more	
NUMBER ('000)					
Males	26.8	55.3	72.4	58.7	213.1
Females	21.3	44.2	62.1	90.1	217.7
Total	48.0	99.5	134.5	148.8	430.8
RATE (a)					
Males	21.4	27.7	51.6	106.5	41.0
Females	17.4	22.6	44.6	123.8	41.1
Total	19.5	25.2	48.1	116.3	41.0

(a) Number per 1,000 population in each category.

TABLE 3. PERSONS WITH A LOSS OF SIGHT WHICH CANNOT BE HELPED BY GLASSES/CONTACT LENSES :
TYPE OF SIGHT LOSS, BY AGE BY SEX
(⁰⁰⁰)

	<i>Age (years)</i>				<i>Total</i>	
	<i>15-24</i>	<i>25-44</i>	<i>45-64</i>	<i>65 or more</i>	<i>Number</i>	<i>Percent</i>
MALES						
Loss of sight in both eyes:						
complete loss in both eyes	*	*	*	*	*	*
complete one eye/partial other eye	*	*	*	*2.7	*4.3	*2.0
partial loss in both eyes	*2.0	*8.6	10.9	*9.4	30.9	14.5
<i>Total, loss of sight in both eyes</i>	<i>*2.0</i>	<i>9.6</i>	<i>12.6</i>	<i>12.7</i>	<i>36.9</i>	<i>17.3</i>
Loss of sight in one eye only:						
complete loss	*2.4	10.5	12.7	12.4	38.0	17.9
partial loss	22.3	35.2	47.1	33.6	138.2	64.8
<i>Total, loss of sight in one eye only</i>	<i>24.7</i>	<i>45.7</i>	<i>59.8</i>	<i>46.0</i>	<i>176.2</i>	<i>82.7</i>
<i>Total</i>	<i>26.8</i>	<i>55.3</i>	<i>72.4</i>	<i>58.7</i>	<i>213.1</i>	<i>100.0</i>
FEMALES						
Loss of sight in both eyes:						
complete loss in both eyes	*	*	*	*	*2.1	*1.0
complete one eye/partial other eye	*	*	*	*6.0	*7.0	*3.2
partial loss in both eyes	*3.6	*7.1	10.6	23.1	44.3	20.4
<i>Total, loss of sight in both eyes</i>	<i>*5.0</i>	<i>*7.2</i>	<i>11.4</i>	<i>29.8</i>	<i>53.4</i>	<i>24.5</i>
Loss of sight in one eye only:						
complete loss	*2.1	*3.4	*6.4	13.2	25.2	11.6
partial loss	14.2	33.6	44.3	47.1	139.2	63.9
<i>Total, loss of sight in one eye only</i>	<i>16.3</i>	<i>37.0</i>	<i>50.7</i>	<i>60.3</i>	<i>164.3</i>	<i>75.5</i>
<i>Total</i>	<i>21.3</i>	<i>44.2</i>	<i>62.1</i>	<i>90.1</i>	<i>217.7</i>	<i>100.0</i>
PERSONS						
Loss of sight in both eyes:						
complete loss in both eyes	*	*	*	*	*3.8	*0.9
complete one eye/partial other eye	*	*	*	*8.7	11.3	2.6
partial loss in both eyes	*5.6	15.7	21.4	32.5	75.2	17.5
<i>Total, loss of sight in both eyes</i>	<i>*7.0</i>	<i>16.8</i>	<i>24.0</i>	<i>42.5</i>	<i>90.3</i>	<i>21.0</i>
Loss of sight in one eye only:						
complete loss	*4.5	14.0	19.1	25.6	63.2	14.7
partial loss	36.5	68.8	91.4	80.7	277.3	64.4
<i>Total, loss of sight in one eye only</i>	<i>41.0</i>	<i>82.7</i>	<i>110.5</i>	<i>106.3</i>	<i>340.5</i>	<i>79.0</i>
<i>Total</i>	<i>48.0</i>	<i>99.5</i>	<i>134.5</i>	<i>148.8</i>	<i>430.8</i>	<i>100.0</i>

TABLE 4. PERSONS SUFFERING THE EFFECT OF AN EYE INJURY : AGE BY SEX

	Age (years)				Total
	15-24	25-44	45-64	65 or more	
NUMBER ('000)					
Males	19.1	59.8	64.0	23.1	166.0
Females	11.1	22.2	25.6	16.4	75.2
Total	30.1	82.0	89.6	39.5	241.2
RATE (a)					
Males	15.3	29.9	45.6	42.0	31.9
Females	9.1	11.4	18.4	22.5	14.2
Total	12.2	20.8	32.0	30.9	23.0

(a) Number per 1,000 population in each category.

TABLE 5. PERSONS WITH A CATARACT : AGE BY SEX

Age (years)					
	15-24	25-44	45-64	65 or more	Total
NUMBER ('000)					
Males	*4.1	22.0	27.3	50.6	104.0
Females	*2.9	13.7	31.6	98.6	146.7
Total	*6.9	35.7	58.8	149.2	250.6
RATE (a)					
Males	*3.3	11.0	19.4	91.9	20.0
Females	*2.4	7.0	22.7	135.4	27.7
Total	*2.8	9.0	21.0	116.7	23.9

(a) Number per 1,000 population in each category.

TABLE 6. PERSONS WITH GLAUCOMA : AGE BY SEX

	Age (years)				
	15-24	25-44	45-64	65 or more	Total
NUMBER ('000)					
Males	*	*	12.9	14.0	29.9
Females	*	*2.1	16.7	24.2	44.6
Total	*2.7	*4.0	29.6	38.3	74.5
RATE (a)					
Males	*	*	9.2	25.5	5.7
Females	*	*1.1	12.0	33.3	8.4
Total	*1.1	*1.0	10.6	29.9	7.1

(a) Number per 1,000 population in each category.

TABLE 7. PERSONS REPORTING COLOUR BLINDNESS : AGE BY SEX

	Age (years)				Total
	15-24	25-44	45-64	65 or more	
NUMBER ('000)					
Males	40.8	87.3	66.4	19.7	214.1
Females	*5.1	10.3	*6.6	*5.1	27.1
Total	45.9	97.6	73.0	24.7	241.2
RATE (a)					
Males	32.7	43.7	47.3	35.7	41.2
Females	*4.2	5.3	*4.7	*6.9	5.1
Total	18.6	24.7	26.1	19.3	23.0

(a) Number per 1,000 population in each category.

TABLE 8. PERSONS WHO HAVE HAD AN OPERATION TO HELP THEIR SIGHT : AGE BY SEX

	Age (years)				Total
	15-24	25-44	45-64	65 or more	
NUMBER ('000)					
Males	25.6	57.9	56.5	44.6	184.6
Females	24.1	42.5	37.7	54.1	158.4
Total	49.7	100.4	94.3	98.7	343.1
RATE (a)					
Males	20.5	29.0	40.3	80.9	35.5
Females	19.7	21.7	27.1	74.3	29.9
Total	20.1	25.4	33.7	77.1	32.7

(a) Number per 1,000 population in each category.

TABLE 9. PERSONS WHO HAVE HAD AN OPERATION TO HELP THEIR SIGHT :
WHETHER PERSONS HAVE GLASSES/CONTACT LENSES, BY AGE BY SEX
('000)

	<i>Age (years)</i>				<i>Total</i>	
	<i>15-24</i>	<i>25-44</i>	<i>45-64</i>	<i>65 or more</i>	<i>Number</i>	<i>Percent</i>
MALES						
Males who have glasses/contact lenses	*8.0	21.2	50.9	41.8	121.9	66.0
Males who do not have glasses/contact lenses	17.6	36.6	*5.7	*2.8	62.7	34.0
Total	25.6	57.9	56.5	44.6	184.6	100.0
FEMALES						
Females who have glasses/contact lenses	11.1	22.9	33.3	51.4	118.6	74.9
Females who do not have glasses/contact lenses	13.0	19.6	*4.5	*2.7	39.8	25.1
Total	24.1	42.5	37.7	54.1	158.4	100.0
PERSONS						
Persons who have glasses/contact lenses	19.1	44.2	84.1	93.1	240.5	70.1
Persons who do not have glasses/contact lenses	30.6	56.2	10.2	*5.5	102.6	29.9
Total	49.7	100.4	94.3	98.7	343.1	100.0

SECTION 2. PERSONS WITH GLASSES/CONTACT LENSES

TABLE 10. PERSONS WITH GLASSES/CONTACT LENSES : AGE BY SEX

	Age (years)				
	15-24	25-44	45-64	65 or more	Total
NUMBER ('000)					
Males	156.8	465.9	1,123.5	515.0	2,261.2
Females	236.0	630.2	1,232.6	697.9	2,796.6
Total	392.8	1,096.1	2,356.0	1,212.9	5,057.8
RATE (a)					
Males	125.7	233.1	800.5	934.8	434.8
Females	193.4	322.4	884.9	958.6	528.1
Total	159.2	277.3	842.5	948.4	481.9

(a) Number per 1,000 population in each category.

TABLE 11. PERSONS WITH GLASSES/CONTACT LENSES : STATE BY SEX

	<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>N.T.</i>	<i>A.C.T.</i>	<i>Aust.</i>
NUMBER ('000)									
Males	807.2	586.7	354.9	216.9	190.8	66.6	9.1	29.0	2,261.2
Females	1,002.9	736.9	433.6	264.3	233.0	82.5	10.3	33.2	2,796.6
Total	1,810.2	1,323.6	788.5	481.2	423.8	149.1	19.4	62.1	5,057.8
RATE (a)									
Males	439.5	424.4	448.2	459.2	420.1	444.5	224.4	400.7	434.8
Females	534.6	514.8	537.0	547.4	530.5	544.0	320.4	438.0	528.1
Total	487.6	470.4	493.0	503.8	474.4	494.5	266.7	419.8	481.9

(a) Number per 1,000 population in each category.

TABLE 12. PERSONS WITH GLASSES/CONTACT LENSES : HOW OFTEN GLASSES/CONTACT LENSES WORN, BY AGE BY SEX ('000)

How often glasses/contact lenses worn	Age (years)				Total	
	15-24	25-44	45-64	65 or more	Number	Percent
MALES						
More than 8 hours a day	80.3	241.7	369.0	193.1	884.1	39.1
4 to 8 hours a day	32.6	73.3	253.7	91.3	450.8	19.9
At least once a week but less than 4 hours a day	33.4	122.3	481.5	225.2	862.4	38.1
Less than once a week	*7.9	24.6	17.5	*4.9	55.0	2.4
Never wear glasses/contact lenses	*2.5	*4.1	*	*	*9.0	*0.4
Total	156.8	465.9	1,123.5	515.0	2,261.2	100.0
FEMALES						
More than 8 hours a day	72.0	206.4	435.5	383.1	1,097.0	39.2
4 to 8 hours a day	56.3	122.7	280.4	129.9	589.3	21.1
At least once a week but less than 4 hours a day	80.9	241.6	490.3	178.6	991.4	35.5
Less than once a week	20.8	48.2	24.3	*5.7	99.0	3.5
Never wear glasses/contact lenses	*6.0	11.3	*2.1	*	19.9	0.7
Total	236.0	630.2	1,232.6	697.9	2,796.6	100.0
PERSONS						
More than 8 hours a day	152.3	448.1	804.5	576.2	1,981.1	39.2
4 to 8 hours a day	88.9	196.0	534.1	221.1	1,040.1	20.6
At least once a week but less than 4 hours a day	114.3	363.9	971.8	403.8	1,853.8	36.7
Less than once a week	28.7	72.8	41.8	10.6	153.9	3.0
Never wear glasses/contact lenses	*8.6	15.4	*3.8	*	28.9	0.6
Total	392.8	1,096.1	2,356.0	1,212.9	5,057.8	100.0

TABLE 13. PERSONS WITH GLASSES/CONTACT LENSES : REASON GLASSES/CONTACT LENSES WORN, BY AGE BY SEX ('000)

Reason glasses/contact lenses worn	Age (years)				Total	
	15-24	25-44	45-64	65 or more	Number	Percent
MALES						
To help see –						
close up only	25.0	117.0	786.9	306.2	1,235.1	54.6
distance only	65.5	166.1	65.5	27.6	324.7	14.4
both close up and distance	40.6	102.2	208.5	128.7	480.0	21.2
Other reason (a)	25.7	80.6	62.6	52.5	221.4	9.8
Total	156.8	465.9	1,123.5	515.0	2,261.2	100.0
FEMALES						
To help see –						
close up only	69.1	193.3	813.9	324.2	1,400.5	50.1
distance only	90.4	211.4	60.1	28.8	390.7	14.0
both close up and distance	32.9	101.5	299.8	300.7	734.8	26.3
Other reason (a)	43.7	123.9	58.8	44.2	270.5	9.7
Total	236.0	630.2	1,232.6	697.9	2,796.6	100.0
PERSONS						
To help see –						
close up only	94.1	310.4	1,600.8	630.5	2,635.7	52.1
distance only	155.9	377.5	125.6	56.5	715.4	14.1
both close up and distance	73.5	203.7	508.3	429.3	1,214.8	24.0
Other reason (a)	69.4	204.6	121.3	96.6	491.9	9.7
Total	392.8	1,096.1	2,356.0	1,212.9	5,057.8	100.0

(a) Includes persons who have glasses/contact lenses for eye conditions such as cataract, astigmatism and strabismus.

TABLE 14. PERSONS WITH GLASSES/CONTACT LENSES : REASON GLASSES/CONTACT LENSES WORN, BY HOW OFTEN WORN ('000)

How often glasses/contact lenses worn	Reason glasses/contact lenses worn -				Total
	To help see close up only	To help see distance only	To help see both close up and distance	Other reason (a)	
More than 8 hours a day	527.0	364.8	1,004.7	84.6	1,981.1
4 to 8 hours a day	680.6	135.7	133.8	90.0	1,040.1
At least once a week but less than 4 hours a day	1,359.4	184.8	72.9	236.7	1,853.8
Less than once a week	59.5	26.9	*	65.7	153.9
Never wear glasses/contact lenses	*9.2	*3.1	*	14.9	28.9
Total	2,635.7	715.4	1,214.8	491.9	5,057.8

(a) Includes persons who have glasses/contact lenses for eye conditions such as cataract, astigmatism and strabismus.

TABLE 15. PERSONS WITH GLASSES/CONTACT LENSES : AGE AT WHICH GLASSES/CONTACT LENSES FIRST WORN, BY CURRENT AGE BY SEX ('000)

Age at which glasses/contact lenses first worn	Age (years)				Total	
	15-24	25-44	45-64	65 or more	Number	Percent
MALES						
Less than 10 years old	33.6	56.5	25.9	*4.6	120.5	5.3
10 years to less than 20 years old	106.3	158.7	70.1	19.9	355.0	15.7
20 years to less than 40 years old	16.7	218.5	194.6	75.1	504.9	22.3
40 years old or more	..	32.3	832.9	415.4	1,280.9	56.6
Total	156.8	465.9	1,123.5	515.0	2,261.2	100.0
FEMALES						
Less than 10 years old	46.6	64.1	44.1	18.0	172.8	6.2
10 years to less than 20 years old	166.8	265.0	139.4	64.0	635.3	22.7
20 years to less than 40 years old	22.6	265.2	249.3	152.6	689.8	24.7
40 years old or more	..	35.8	799.7	463.2	1,298.8	46.4
Total	236.0	630.2	1,232.6	697.9	2,796.6	100.0
PERSONS						
Less than 10 years old	80.2	120.6	70.0	22.5	293.3	5.8
10 years to less than 20 years old	273.1	423.7	209.5	84.0	990.2	19.6
20 years to less than 40 years old	39.3	483.7	444.0	227.8	1,194.7	23.6
40 years old or more	..	68.2	1,632.6	878.6	2,579.6	51.0
Total	392.8	1,096.1	2,356.0	1,212.9	5,057.8	100.0

TABLE 16. PERSONS WITH GLASSES/CONTACT LENSES : AGE AT WHICH GLASSES/CONTACT LENSES FIRST WORN, BY THE REASON THEY ARE NOW WORN (a) ('000)

Age at which glasses/contact lenses first worn	Reason glasses/contact lenses worn -				Total
	To help see close up only	To help see distance only	To help see both close up and distance	Other reason (b)	
Less than 10 years old	73.4	63.7	126.4	29.7	293.3
10 years to less than 20 years old	249.3	360.6	250.2	130.2	990.2
20 years to less than 40 years old	480.1	224.9	339.3	150.3	1,194.7
40 years old or more	1,832.8	66.2	498.9	181.7	2,579.6
Total	2,635.7	715.4	1,214.8	491.9	5,057.8

(a) The reason why glasses/contact lenses were first worn may not be the same as that for which glasses/contact lenses are currently worn. (b) Includes those persons who have glasses/contact lenses for eye conditions such as cataract, astigmatism and strabismus.

TABLE 17. PERSONS WITH GLASSES/CONTACT LENSES : WHETHER PERSONS HAVE EITHER OR BOTH GLASSES AND CONTACT LENSES, BY AGE BY SEX ('000)

	Age (years)				Total	
	15-24	25-44	45-64	65 or more	Number	Percent
MALES						
Glasses only	145.2	443.6	1,115.8	512.1	2,216.7	98.0
Contact lenses only	*3.1	*7.1	*	*	10.3	0.5
Both glasses and contact lenses	*8.5	15.2	*7.7	*2.9	34.3	1.5
Total	156.8	465.9	1,123.5	515.0	2,261.2	100.0
FEMALES						
Glasses only	219.5	581.0	1,225.8	693.5	2,719.8	97.3
Contact lenses only	*6.4	15.7	*	*	23.0	0.8
Both glasses and contact lenses	10.1	33.5	*5.9	*4.4	53.9	1.9
Total	236.0	630.2	1,232.6	697.9	2,796.6	100.0
PERSONS						
Glasses only	364.7	1,024.5	2,341.7	1,205.5	4,936.4	97.6
Contact lenses only	9.6	22.8	*	*	33.2	0.7
Both glasses and contact lenses	18.6	48.8	13.5	*7.3	88.2	1.7
Total	392.8	1,096.1	2,356.0	1,212.9	5,057.8	100.0

TABLE 18. PERSONS WITH GLASSES/CONTACT LENSES : WHETHER PERSONS HAVE EITHER OR BOTH GLASSES AND CONTACT LENSES, BY STATE ('000)

	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
Glasses only	1,773.8	1,291.1	773.1	464.8	411.9	145.5	18.5	57.9	4,936.4
Contact lenses only	*7.1	10.6	*4.1	6.1	*3.0	*1.0	*	*	33.2
Both glasses and contact lenses	29.3	21.9	11.2	10.4	8.9	2.7	*	3.4	88.2
Total	1,810.2	1,323.6	788.5	481.2	423.8	149.1	19.4	62.1	5,057.8

TABLE 19. PERSONS WITH CONTACT LENSES : TYPE OF CONTACT LENSES, BY AGE BY SEX ('000)

Type of contact lenses	Age (years)				Total	
	15-24	25-44	45-64	65 or more	Number	Percent
MALES						
Soft only	*8.8	14.4	*4.4	*	28.9	64.9
Hard only	*2.6	*6.8	*2.6	*	13.1	29.5
Soft and hard	*	*	*	*	*	*
Total (a)	11.6	22.4	*7.7	*2.9	44.5	100.0
FEMALES						
Soft only	11.6	31.1	*2.9	*	46.4	60.4
Hard only	*4.6	17.0	*3.3	*	25.4	33.0
Soft and hard	*	*	*	*	*	*
Total (a)	16.6	49.2	*6.7	*4.4	76.9	100.0
PERSONS						
Soft only	20.4	45.5	*7.3	*2.2	75.4	62.1
Hard only	*7.2	23.8	*5.9	*	38.5	31.7
Soft and hard	*	*	*	*	*	*
Total (a)	28.1	71.6	14.4	*7.3	121.4	100.0

(a) Includes 6,400 persons who did not know the type of contact lenses worn.

SECTION 3. PERSONS WHO HAD THEIR SIGHT TESTED IN THE LAST FIVE YEARS

TABLE 20. PERSONS WHO HAD THEIR SIGHT TESTED IN THE LAST 5 YEARS : TIME SINCE LAST TEST, BY AGE BY SEX ('000)

Time since last sight test	Age (years)				Total	
	15-24	25-44	45-64	65 or more	Number	Percent
MALES						
Less than 1 year	244.3	343.5	395.6	144.8	1,128.1	37.6
1 year to less than 3 years	235.6	377.4	428.9	145.0	1,186.9	39.5
3 years to 5 years	152.7	219.7	216.2	99.0	687.7	22.9
Total	632.7	940.6	1,040.7	388.7	3,002.8	100.0
Rate (a)	507.3	470.7	741.5	705.6	577.4	..
FEMALES						
Less than 1 year	241.2	290.0	404.2	250.8	1,186.2	36.7
1 year to less than 3 years	267.1	356.4	479.9	204.8	1,308.2	40.5
3 years to 5 years	160.3	230.3	238.2	109.9	738.7	22.8
Total	668.7	876.6	1,122.3	565.4	3,233.0	100.0
Rate (a)	547.9	448.5	805.7	776.7	610.5	..
PERSONS						
Less than 1 year	485.5	633.4	799.8	395.6	2,314.3	37.1
1 year to less than 3 years	502.8	733.8	908.8	349.7	2,495.1	40.0
3 years to 5 years	313.1	450.0	454.4	208.9	1,426.4	22.9
Total	1,301.3	1,817.3	2,163.0	954.2	6,235.8	100.0
Rate (a)	527.4	459.7	773.5	746.1	594.1	..

(a) Number per 1,000 population in each category who had sight tested in the last 5 years.

TABLE 21. PERSONS WHO HAD THEIR SIGHT TESTED IN THE LAST 5 YEARS : TIME SINCE LAST TEST, BY STATE ('000)

Time since last sight test	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
Less than 1 year	825.7	583.2	355.3	220.4	205.9	73.2	19.2	31.5	2,314.3
1 year to less than 3 years	873.2	630.6	373.3	243.8	226.1	80.8	23.8	43.6	2,495.1
3 years to 5 years	485.3	412.7	208.2	126.7	124.2	41.3	*3.7	24.3	1,426.4
Total	2,184.2	1,626.4	936.8	590.8	556.3	195.4	46.7	99.3	6,235.8
Rate (a)	588.3	578.1	585.7	618.6	622.6	647.8	641.6	671.0	594.1

(a) Number per 1,000 population in each category who had sight tested in the last 5 years.

TABLE 22. PERSONS WHO HAD THEIR SIGHT TESTED IN THE LAST 5 YEARS : TYPE OF PERSON WHO LAST TESTED SIGHT, BY AGE BY SEX ('000)

Person who tested sight	Age (years)				Total	
	15-24	25-44	45-64	65 or more	Number	Percent
MALES						
Optometrist/Optician	135.9	327.0	565.8	178.8	1,207.5	40.2
Eye specialist/Ophthalmologist	147.8	283.2	414.3	178.7	1,024.0	34.1
Other person (a)	320.7	306.1	46.8	27.8	701.5	23.4
Don't know	28.2	24.3	13.9	*3.4	69.7	2.3
Total	632.7	940.6	1,040.7	388.7	3,002.8	100.0
FEMALES						
Optometrist/Optician	215.9	419.7	629.3	243.4	1,508.4	46.7
Eye specialist/Ophthalmologist	161.6	327.8	463.5	291.8	1,244.6	38.5
Other person (a)	274.1	119.0	21.9	19.8	434.9	13.5
Don't know	17.0	10.1	*7.5	10.5	45.1	1.4
Total	668.7	876.6	1,122.3	565.4	3,233.0	100.0
PERSONS						
Optometrist/Optician	351.9	746.7	1,195.1	422.3	2,716.0	43.6
Eye specialist/Ophthalmologist	309.4	611.0	877.8	470.4	2,268.6	36.4
Other person (a)	594.9	425.2	68.7	47.7	1,136.4	18.2
Don't know	45.2	34.4	21.4	13.9	114.8	1.8
Total	1,301.3	1,817.3	2,163.0	954.2	6,235.8	100.0

(a) Includes general practitioners and nurses.

TABLE 23. PERSONS WHO HAD THEIR SIGHT TESTED IN THE LAST 5 YEARS : TYPE OF PERSON WHO LAST TESTED SIGHT, BY STATE ('000)

Person who tested sight	N.S. W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
Optometrist/Optician	822.7	751.7	456.5	294.0	247.0	103.1	12.7	28.3	2,716.0
Eye specialist/Ophthalmologist	972.5	541.3	307.9	185.6	170.1	44.5	11.4	35.2	2,268.6
Other person (a)	362.5	294.7	159.9	92.5	123.2	46.2	22.5	34.9	1,136.4
Don't know	26.4	38.7	12.5	18.7	15.9	*1.5	*	*	114.8
Total	2,184.2	1,626.4	936.8	590.8	556.3	195.4	46.7	99.3	6,235.8

(a) Includes general practitioners and nurses.

TABLE 24. PERSONS WHO HAD THEIR SIGHT TESTED IN THE LAST 5 YEARS : TIME SINCE LAST TEST,
BY TYPE OF PERSON WHO TESTED SIGHT
(‘000)

Time since last sight test	Person who tested sight –				Total
	Optometrist/ Optician	Eye specialist/ Ophthalmologist	Other person	Don't know	
MALES					
Less than 1 year	416.1	416.4	274.7	21.0	1,128.1
1 year to less than 3 years	516.6	394.0	252.3	24.0	1,186.9
3 years to 5 years	274.8	213.6	174.5	24.8	687.7
Total	1,207.5	1,024.0	701.5	69.7	3,002.8
FEMALES					
Less than 1 year	498.7	518.3	157.6	11.6	1,186.2
1 year to less than 3 years	645.8	484.6	155.8	21.9	1,308.2
3 years to 5 years	363.9	241.7	121.5	11.6	738.7
Total	1,508.4	1,244.6	434.9	45.1	3,233.0
PERSONS					
Less than 1 year	914.8	934.7	432.3	32.6	2,314.3
1 year to less than 3 years	1,162.4	878.6	408.1	45.9	2,495.1
3 years to 5 years	638.7	455.3	296.0	36.4	1,426.4
Total	2,716.0	2,268.6	1,136.4	114.8	6,235.8

TABLE 25. PERSONS WHO HAD THEIR SIGHT TESTED IN THE LAST 5 YEARS : TIME SINCE LAST TEST,
BY WHETHER PERSONS HAVE GLASSES/CONTACT LENSES
(‘000)

<i>Time since last sight test</i>	<i>Persons who have glasses/contact lenses</i>		<i>Persons who do not have glasses/contact lenses</i>		<i>Total</i>	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
Less than one year	1,672.7	38.7	641.6	33.6	2,314.3	37.1
1 year to less than 3 years	1,769.8	40.9	725.3	38.0	2,495.1	40.0
3 years to 5 years	884.7	20.4	541.7	28.4	1,426.4	22.9
<i>Total</i>	<i>4,327.2</i>	<i>100.0</i>	<i>1,908.5</i>	<i>100.0</i>	<i>6,235.8</i>	<i>100.0</i>

**SECTION 4. DISTRIBUTION OF THE AUSTRALIAN POPULATION AGED 15 YEARS OR MORE
(FOR USE IN CALCULATION OF RATES)**

**TABLE 26. AUSTRALIAN POPULATION (a) AGED 15 YEARS OR MORE : AGE BY SEX
(^{'000})**

	<i>Age (years)</i>				<i>Total</i>
	<i>15-24</i>	<i>25-44</i>	<i>45-64</i>	<i>65 or more</i>	
Males	1,247.2	1,998.6	1,403.4	550.9	5,200.1
Females	1,220.5	1,954.7	1,392.9	728.0	5,296.1
Total	2,467.7	3,953.2	2,796.4	1,278.9	10,496.2

(a) The population referred to is that estimated as at the end of April 1979 by using the 1976 Population Census results adjusted for natural increase and net migration gain (long term and permanent movements) since the Census. The estimates were also adjusted to conform with the scope of the survey (see explanatory notes paragraph 3).

**TABLE 27. AUSTRALIAN POPULATION (a) AGED 15 YEARS OR MORE : STATE BY SEX
(^{'000})**

	<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>N.T.</i>	<i>A.C.T.</i>	<i>Aust.</i>
Males	1,836.6	1,382.2	791.9	472.3	454.1	149.9	40.7	72.3	5,200.1
Females	1,875.9	1,431.3	807.4	482.9	439.3	151.6	32.0	75.7	5,296.1
Total	3,712.4	2,813.5	1,599.3	955.2	893.4	301.6	72.7	148.0	10,496.2

(a) The population referred to is that estimated as at the end of April 1979 by using the 1976 Population Census results adjusted for natural increase and net migration gain (long term and permanent movements) since the Census. The estimates were also adjusted to conform with the scope of the survey (see explanatory notes paragraph 3).

TECHNICAL NOTE

Estimation procedure

Estimates derived from the survey are obtained by using a complex ratio estimation procedure, which ensures that the survey estimates conform to an independently estimated distribution of the population by age and sex, rather than to the age and sex distribution within the sample itself.

Reliability of the estimates

2. Since the estimates in this publication are based on information obtained from occupants of a sample of dwellings they are subject to sampling variability; that is, they may differ from the figures that would have been produced if all dwellings had been included in the survey. One measure of the likely difference is given by the *standard error*, which indicates the extent to which an estimate might have varied by chance because only a sample of dwellings was included. There are about two chances in three that a sample estimate will differ by less than one standard error from the figure that would have been obtained if all dwellings had been included, and about nineteen chances in twenty that the difference will be less than two standard errors. Another measure of the likely difference is the relative standard error, which is obtained by expressing the standard error as a percentage of the estimate.

3. Space does not allow for the separate indication of the standard error of all estimates in this publication. A table of standard errors for general application is given in Table A on page 25. These figures will not give a precise measure of the standard error of a particular estimate but they will provide an indication of its magnitude. An example of the calculation and use of standard errors is as follows: Table 2 shows that the estimated number of females aged 15 to 24 years with a loss of sight that cannot be helped by glasses/contact lenses in Australia is 21,300. From Table A it will be seen that the estimate has a standard error of about

3,400 and therefore there are about two chances in three that the value that would have been produced if all dwellings had been included in the survey will fall within the range 17,900 to 24,700 and about nineteen chances in twenty that the value will fall within the range 14,500 to 28,100. This example is illustrated in the diagram below.

4. The size of the standard error in relation to the estimate indicates that the actual value could be greater or less (within standard error ranges) than the published figure.

5. As the standard errors in the table show, *the smaller the estimate the higher is the relative standard error*. Very small estimates would thus be subject to such high standard errors (relative to the size of the estimate) as to detract seriously from their value for most reasonable uses. In this publication, only estimates with relative standard errors less than 25% are considered sufficiently reliable for most purposes. Estimates with relative standard errors between 25% and 50% have been included and are preceded by the symbol *. Considerable care should be exercised in using them because they are subject to such high errors. Estimates with relative standard errors greater than 50% have not been shown and although figures for these components can in some cases be derived by subtraction, they should not be regarded as reliable.

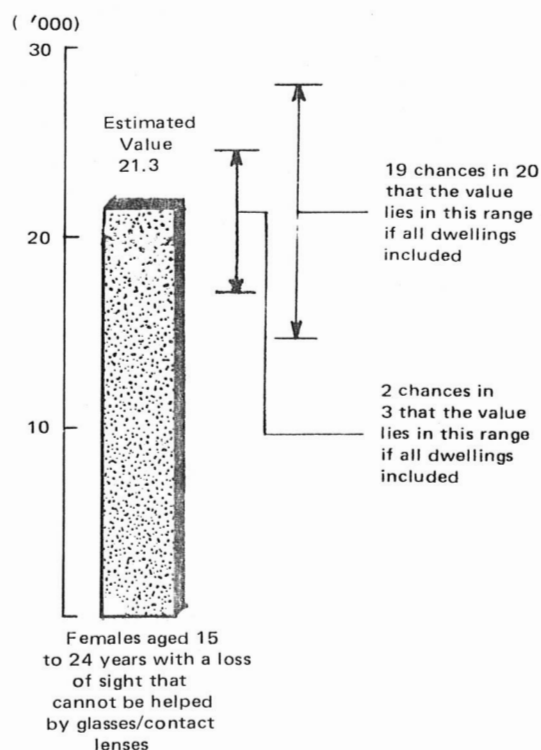
6. The reliability of an estimated percentage or rate computed by using sample data for both numerator and denominator, depends upon both the size of the numerator and the size of the denominator. However, the relative standard error of the estimated percentage will generally be lower than the relative standard error of the estimate of the numerator.

7. Approximate standard errors on rates or percentages may be derived by first obtaining the relative standard error of the number of persons corresponding to the numerator of this rate or percentage and then applying this figure to the estimated rate or percentage. The relative standard error of the numerator can be obtained from Table A. An example of this calculation is as follows: Table 7 shows a rate of 41.2 per 1,000 males with reported colour blindness and that the numerator of this rate is 214,100. By interpolation from Table A the standard error of the numerator is approximately 9,000, which is a relative standard error of 4.2 percent. The standard error on this rate of 41.2 is then approximated as:

Rate x Relative standard error

$$= 41.2 \times \frac{4.2}{100.0}$$

$$= 1.7$$



Therefore there are 2 chances in 3 that the rate that would have been obtained if all dwellings had been included in the survey is in the range 39.5 to 42.9 per 1,000 males and 19 chances in 20 that it is in the range 37.8 to 44.6 per 1,000 males.

8. Published figures may also be used to estimate the difference between two survey estimates (estimates of numbers, rates or percentages). Such a figure is itself an estimate and is therefore subject to sampling error. The sampling error of the difference between two survey estimates depends on the standard errors of the original estimates and on the relationship (correlation) between the two original estimates. An approximate standard error of the difference between two estimates (x-y) may be calculated by the following formula:

Standard error (x-y) =

$$\sqrt{(\text{Standard error (x)})^2 + (\text{Standard error (y)})^2}$$

While this formula will only be exact for differences between separate and uncorrelated (unrelated) characteristics or sub-populations it is expected to provide a good approximation for all differences likely to be of interest in this publication.

9. An example of the use of the above formula is as follows. The difference between the estimates of the number of females and males aged 25 to 44 years with contact lenses (Table 19) is

$$49,200 - 22,400 = 26,800$$

10. The standard error of this estimate is as follows. From Table A the standard errors of each of the two original estimates can be approximated as 4,900 and 3,400 respectively. Therefore the standard error on the difference 26,800 is given by:

Standard error (49,200 - 22,400)

$$= \sqrt{(4,900)^2 + (3,400)^2}$$

$$= 6,000 \text{ (rounded to nearest 100)}$$

Thus there are about 2 chances in 3 that the difference that would have been obtained, if all dwellings had been included in the survey is within the range 20,800 to 32,800 and about 19 chances in 20 that this difference is between 14,800 and 38,800.

11. The imprecision due to sampling variability, which is measured by the standard error, should not be confused with inaccuracies that may occur because of imperfections in reporting by interviewers and respondents. Inaccuracies of this kind are referred to as the *non-sampling error*, and they may occur in any enumeration, whether it be a full count or only a sample. Every effort is made to reduce the non-sampling error to a minimum by careful design of questionnaires, intensive training and supervision of interviewers and efficient operating procedures.

TABLE A - STANDARD ERRORS OF ESTIMATES

Size of estimate	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Australia
500						310			Relative
600						330			standard
700						360			error
800						380			(per cent)
900						400			
1,000						420			
1,100					530	430		540	
1,200					580	450		560	
1,300				650	600	470		580	
1,400				670	620	480		590	
1,500				700	650	550		610	
2,000			890	800	750		910	670	
2,500		1,200	1,000	880	840	600	1,000	720	
3,000	1,400	1,300	1,100	960	920	650	1,100	760	1,100 45.6
3,500	1,500	1,400	1,200	1,000	990	690	1,200	790	1,300 41.9
4,000	1,600	1,500	1,300	1,100	1,100	730	1,300	820	1,400 39.0
4,500	1,700	1,600	1,300	1,100	1,100	760	1,300	850	1,500 36.6
5,000	1,800	1,700	1,400	1,200	1,200	790	1,400	870	1,600 34.6
6,000	2,000	1,800	1,500	1,300	1,300	850	1,500	900	1,600 32.9
10,000	2,500	2,300	1,900	1,600	1,600	1,000	1,900	1,000	1,800 30.1
20,000	3,400	3,200	2,600	2,100	2,100	1,200	2,300	1,100	2,300 23.3
50,000	5,000	4,800	3,800	2,800	3,000	1,500	3,000	1,200	3,300 16.3
100,000	6,600	6,300	5,100	3,500	3,800	1,700		1,200	4,900 9.9
200,000	8,500	8,300	6,600	4,300	4,700	1,800			6,600 6.6
300,000	9,800	9,600	7,700	4,700	5,200				8,800 4.4
500,000	12,000	12,000	9,200	5,300	5,600				10,000 3.4
1,000,000	14,000	15,000	12,000						12,000 2.5
2,000,000	17,000	18,000							16,000 1.6
5,000,000									20,000 1.0
									26,000 0.5

Brackets around standard errors indicate a standard error per cent exceeding 25%.

